



ARIZONA DEPARTMENT OF TRANSPORTATION



HIGHWAY DIVISION

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Director

October 28, 1993

Engineering Consultants Services

INFORMATION BULLETIN 93-13

TO: CONSULTANTS

FROM: ENGINEERING CONSULTANTS SERVICES *Ron*

SUBJECT: HIGHWAY DRAINAGE DESIGN MANUAL
HYDROLOGY, MARCH 1993

Effective January 1, 1994, for projects which commence on that date or later, hydrology shall be computed in accordance with the Highway Drainage Design Manual: Hydrology dated March 1993. The manual is available at Engineering Records Section, 1655 West Jackson (Room 112F), Phoenix, AZ 85007

If you have any questions regarding this issue, please call George Lopez-Cepero at (602) 255-7481

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ARIZONA DEPARTMENT OF TRANSPORTATION
OFFICE MEMO
BRIDGE DRAINAGE SERVICES

October 27, 1993

TO: ENGINEERING CONSULTANT SERVICES, 616E

FROM: GEORGE LOPEZ-CEPERO
Supervisor
Structures Section, 613E

SUBJECT: HYDROLOGY

Effective January 1, 1994, for projects which commence on that date or later, hydrology shall be computed in accordance with the *Highway Drainage Design Manual: Hydrology, March 1993*.

The manual presents methodology for:

Rational Method
HEC-1 Rainfall-Runoff modeling
Statistical Analysis

Methods described in prior publications shall not be used.

The rational method is recommended for use at sites where the contributing drainage area is 160 acres or less. For small sites, HEC-1 using single basin modeling can be used. For large, or complex basins, a multi-basin model should be used.

In watersheds where Regulatory Floodplains are established or proposed, or where flow rates have been established by other agencies, the flood-frequency curve approved by FEMA and/or the administering agency shall be used for compliance with the floodplain regulations. That flood-frequency relationship shall be reviewed for appropriateness in regards to the highway stream-crossing system. It may be necessary to use a different flow for design of the structure and its appurtenances.

The flood-frequency curve used for design must be selected using engineering judgement. Stream runoff records, where available from U.S.G.S. stream gages, shall be analyzed with methods in the manual.


GEORGE LOPEZ-CEPERO

GLC:nb/504